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are in tasajas. This is a species of cactus for which, for the want of a better name, I am obliged to use that of the Mexicans. The word means "dry or jerked beef" which in color and shape the tasaja somewhat resembles. The spines, although innumerable, are short and the branches spreading and open. The cholla is the characteristic cactus of the desert. It is a mass of barbed spines and is the favorite nesting place of *H. palmeri*, but not of *H. bendirei*. Taking 50 nests in succession 34 of them were placed in tasajas, 11 in chollas, 3 in tesota bushes, 1 in a mesquite tree and one in a willow tree. These results are from the Fort Lowell district. In other sections of country less characteristic of the cacti I have found them largely inclined to tree nesting, but never at any great height from the ground. This was Capt. Bendire's experience also. The highest I ever saw one placed was in a willow about 20 feet up. I also saw one in a tasaja the bottom of which was not more than 6 inches from the ground.

BIRDS OF THE BLACK HILLS.

BY MERRITT CARY.

FOR several years it had been my desire to take a trip to the western part of the Black Hills—especially to that portion which is bounded on the east by the Timber Reserve, and slopes off gradually to the west and southwest until it merges into the arid sagebrush plains of central Wyoming. In selecting this field I hoped to meet with two distinct faunas, and to be as nearly as possible on the dividing line between the two faunal regions.

Accordingly, the 29th of May, 1899, found me very pleasantly situated at the ranch of an old friend, fourteen miles southeast of Newcastle, Wyo., in a branch of the beautiful Gillette Cañon. The scenery here is picturesque in the extreme, the hills to the eastward being within the Reserve, and clothed with heavy forests of pine; while to the westward the foothills are almost devoid of timber, but covered with a heavy growth of 'wait-a-bit' brush, the uniform greenish-gray color of which contrasts strongly with the red sandstone rocks. To the southwest the Elk Mountain

range is seen as a succession of ridges, finally culminating in Elk Mountain, which raises its huge mass to an elevation of some fifty-seven hundred feet.

It was in this ideal situation that I spent the first half of June, both in 1899 and 1900, in studying and collecting the fauna and flora of the region. Unfortunately, however, the season was too backward in 1899 for any egg collecting. The majority of the birds were just commencing to build nests when I left, on the 11th of June.

Before going to Newcastle in 1899, I had stopped over a day at Hot Springs and Edgemont, S. Dak., respectively, and in the list I give the birds observed at all three localities, with brief notes as to their habits, distribution, etc.

The season was much earlier in 1900, and the nesting season was at its height in the early part of June. On this account my notes for 1900, concerning the habits of certain species, are much more copious than those for 1899. A goodly number of species not noted in 1899 were abundant in 1900.

In the following list localities are mentioned only in connection with species observed at Hot Springs and Edgemont, S. Dak. The reference in all other cases is to the immediate vicinity of Campbell's Ranch, fourteen miles southeast of Newcastle.

1. *Querquedula discors*. BLUE-WINGED TEAL.—Several pairs seen on a creek south of Buffalo Gap, S. Dak., where they were doubtless breeding.
2. *Numenius longirostris*. LONG-BILLED CURLEW.—Frequently seen on the tablelands, where they breed.
3. *Aegialitis vocifera*. KILLDEER.—On plowed fields, in Gillette Cañon.
4. *Dendragapus obscurus*. DUSKY GROUSE.—The ranchmen informed me that when hunting in the higher portions of the hills they frequently shot these grouse.
5. *Pediocetes phasianellus campestris*. PRAIRIE SHARP-TAILED GROUSE.—I noted but two specimens, one in 1899 and one in 1900.
6. *Centrocercus urophasianus*. SAGE GROUSE.—Very common in the sage brush, both in the foot-hills and on the plains.
7. *Zenaidura macroura*. MOURNING DOVE.—In 1899 I did not once see it within the Hills, but the birds were abundant along the Elkhorn R. R. south of Buffalo Gap, S. Dak. In 1900 doves were frequently seen at the ranch.
8. *Cathartes aura*. TURKEY VULTURE.—Frequently seen and doubtless breeds.

9. **Accipiter velox.** SHARP-SHINNED HAWK.—Said to be abundant, and very destructive to poultry in fall, winter and spring. I found a nest in one of the cañons back of the ranch on June 8, 1899, which contained two fresh eggs. The parent birds were shy, but frequently uttered their alarm notes. The nest was typical of the species, about thirty feet up in a pine. Before leaving the nesting-site I secured both of the old birds. Upon visiting the nest again on June 11, 1900, I found it to be occupied by another pair, and took a fresh set of five eggs.

10. **Buteo borealis.** RED-TAILED HAWK.—Seen but once, on June 5, 1900.

11. **Buteo borealis kriderii.** KRIDER'S RED-TAIL.—I saw but three of these hawks, one in 1899 and two in 1900.

12. **Buteo swainsoni.** SWAINSON'S HAWK.—By far the most abundant of the larger hawks. A common breeder in the timber along the Cheyenne River, as it is along the smaller streams.

13. **Aquila chrysaëtos.** GOLDEN EAGLE.—Fairly common throughout the region. I saw several old nests in the most inaccessible places on the cañon walls, and a ranchman told me of a pair that were then (June 8, 1899) nesting near the ranch, thirty miles southeast of Newcastle, but I did not have time to visit the nest.

14. **Falco sparverius.** AMERICAN SPARROW HAWK.—Common breeder throughout the region. Exceeds all the other hawks in point of numbers. Nesting appeared to be just commencing on June 9, 1900.

15. **Asio wilsonianus.** AMERICAN LONG-EARED OWL.—A pair of these owls had a nest about thirty feet up in a large pine in one of the cañons, and when I visited the site, on June 3, 1900, the nest contained young birds.

16. **Nyctala acadica.** SAW-WHET OWL. On June 11, 1900, while walking down the rocky bed of a deep cañon, three of these little owls flushed from the thick top of a small cedar, where they had been taking their noonday siesta, and alighted farther down the cañon. I secured one of them, which proved to be an immature bird, with the breast and belly of a deep fawn color.

17. **Megascops asio maxwelliae.** ROCKY MOUNTAIN SCREECH OWL.—I saw a Screech Owl in the heavy timber which was probably of this variety.

18. **Bubo virginianus.** GREAT HORNED OWL.—Two young were killed near Soper's Ranch, thirty miles southeast of Newcastle, on June 13, 1900.

19. **Speotyto cunicularia hypogæa.** BURROWING OWL.—Common in prairie dog towns.

20. **Ceryle alcyon.** BELTED KINGFISHER.—Sweet's Ranch, six miles southeast of Newcastle— one individual on the sawmill pond.

21. **Dryobates villosus hyloscopus.** CABANIS'S WOODPECKER.—Frequently seen in the cañons.

22. **Dryobates pubescens medianus.** — DOWNY WOODPECKER.—In same situations as last.

23. *Picoides arcticus*. ARCTIC THREE-TOED WOODPECKER.— But two examples of this species were seen, one on June 2, 1899, and the other, which I secured, on June 11, 1900. This latter bird, an adult male, had the feathers of its under parts matted together with pitch which it had rubbed from the pine trunks. Both birds were seen in the heavy timber, and it is quite probable that the species breeds in the hills.

24. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.— The most abundant woodpecker in the Hills.

25. *Melanerpes torquatus*. LEWIS'S WOODPECKER.— This fine woodpecker is common in the Hills, and is partial to the burnt timber on the sides of cañons. They are frequently seen to launch into the air from a dead stub in such a situation, and, after a few aerial evolutions, to return to their former perch. Whether or not the woodpecker is catching an insect at such times I am unable to state, but it is my firm belief that such is the case. I have found Lewis's Woodpecker at all times to be an extremely wary bird, and very difficult of approach.

26. *Colaptes auratus luteus*. NORTHERN FLICKER.— Fairly common. I found a nest containing nine fresh eggs on June 4, 1899.

27. *Colaptes cafer*. RED-SHAFTED FLICKER.— Common throughout the Hills.

28. *Phalaenoptilus nuttallii*. POOR-WILL.— The monotonous notes of these birds were heard every night at the ranch.

29. *Chordeiles virginianus henryi*. WESTERN NIGHTHAWK.— It is quite probable that the nighthawks observed were of this variety. Ranchmen informed me that eggs were often found in July.

30. *Aeronautes melanoleucus*. WHITE-THROATED SWIFT.— Abundant, both at Hot Springs and Newcastle, where they were breeding in June in the most inaccessible cracks and crevices on the face of sandstone cliffs. The ranchmen have styled these birds 'twitter-twitters' and 'nightflyers.'

31. *Selasphorus platycercus*. BROAD-TAILED HUMMINGBIRD.— Two hummingbirds were seen at the ranch in the latter part of May, 1900, and as a very accurate description of the birds was given me I have no hesitancy in listing the species.

32. *Tyrannus tyrannus*. KINGBIRD.— Fairly common along Beaver Creek, seven miles from Newcastle, where the trees are mostly boxelders.

33. *Tyrannus verticalis*. ARKANSAS KINGBIRD.— Frequently seen at Hot Springs, where it spends much of its time perched upon telephone wires.

34. *Sayornis phoebe*. PHŒBE.— Noted but once, on Beaver Creek.

35. *Sayornis saya*. SAY'S PHŒBE.— This interesting flycatcher is quite common in the cañons where its sweet but somewhat melancholy notes may be heard at all hours of the day. The favorite perch of this bird is a boulder in the bottom of a cañon, from which it darts forth every few moments to capture a passing insect. While in the air the

black tail is very prominent. But one nest was found, containing two eggs, on June 11, 1899, which was situated on a small ledge in a recess of the cañon wall. This nest, which was composed almost entirely of moss, was remarkably shallow, the center being not more than two thirds of an inch lower than the edges.

36. *Contopus richardsonii*. WESTERN WOOD PEWEE.—Frequently seen, but no nests were found. The monotonous *pē-a-wee* of this bird was heard almost every morning and evening during my stay in 1900. The species frequents the heavy timber in the cañons.

37. *Empidonax traillii*. TRAILL'S FLYCATCHER.—Partial to the 'wait-a-bit' brush in the rocky heads of cañons. Here this sly little flycatcher is frequently seen catching insects around the rim-rock on a hot day, uttering at short intervals its sharp *ke-wick, ke-wick*.

38. *Empidonax virescens*. ACADIAN FLYCATCHER.—I took an adult male on Pine Ridge, Sioux County, Neb., about fifteen miles from the northwestern corner of the state, on May 26, 1900. The species is probably occasionally found within the Hills.

39. *Empidonax minimus*. LEAST FLYCATCHER.—A common breeder in chokecherry thickets in the cañons. The nests were very thick-walled and compact, averaging four inches in height, and two and a half inches inside diameter. The nesting material used was coarse grass and weed-leaves; the lining of fine grass, horse hair, fibers and plant down. An incomplete set of two pure white eggs was taken on June 15 from a nest in Hop Cañon.

40. *Otocoris alpestris arenicola*. DESERT HORNED LARK.—Occasionally seen on the tablelands.

41. *Pica pica hudsonica*. AMERICAN MAGPIE.—Plenty of old nests were seen in 1899, but although common before my arrival, I did not see one during my stay of two weeks in 1900.

42. *Perisoreus canadensis capitalis*. ROCKY MOUNTAIN JAY.—A common bird in the higher parts of the Hills, especially so in the Reserve. The deer hunters claim they can nearly always locate a deer by a certain note which this jay utters, greatly resembling the words 'Here-it-is,' 'Here-it-is.' I myself did not hear this note, but it is quite probable that the birds are noisier than usual when a deer is near, just as is the case with crows when a flock of ducks is feeding near them. Troops of fully grown young of this species were seen on June 12, 1899, and June 12 and 13, 1900.

43. *Corvus americanus*. AMERICAN CROW.—A small flock at L. A. K. Ranch, on Beaver Creek, in 1900.

44. *Nucifraga columbiana*. CLARKE'S NUTCRACKER.—Two of these noisy birds were seen on Elk Mountain at an elevation of 5500 feet, on June 9, 1899, in company with a troop of Rocky Mountain Jays. Their notes are very harsh and discordant, something like *k-r-r-aw*.

45. *Cyanocephalus cyanocephalus*. PIÑON JAY.—This bird is universally disliked by ranchmen on account of the damage it does to growing

crops, and large numbers are killed and poisoned. It is very difficult to get within gunshot of these jays in summer, but I was told that in cold weather, when driven to the ranches by hunger, they become very bold, even entering the kitchen of the ranch house in quest of food. When ravaging the crops Piñon Jays go about in immense flocks, and always keep sentinels posted to warn them of impending danger. Fully grown young birds were common on June 4. Piñon Jays are partial to the foothills, and are seldom seen back in the heavy timber.

46. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD.—A few seen near Hot Springs.

47. *Sturnella magna neglecta*. WESTERN MEADOWLARK.—Abundant at Hot Springs, Edgemont and Newcastle—breeds.

48. *Icterus galbula*. BALTIMORE ORIOLE.—Breeding at Edgemont.

49. *Icterus bullocki*. BULLOCK'S ORIOLE.—Common at Edgemont, where it breeds.

50. *Scolecophagus cyanocephalus*. BREWER'S BLACKBIRD.—Usually seen in the vicinity of springs.

51. *Quiscalus quiscula æneus*. BRONZED GRACKLE.—Occasional.

52. *Pinicola enucleator canadensis*. PINE GROSBEAK.—Hot Springs, May 28, 1899; Newcastle, June 8, 1900.

53. *Loxia curvirostra minor*. AMERICAN CROSSBILL.—Both at Hot Springs and Newcastle, in the latter locality around springs. Did not appear to be breeding.

54. *Loxia curvirostra stricklandi*. MEXICAN CROSSBILL.—Am quite certain that I saw two of these birds at Hot Springs, as I was very close to them at the time.

55. *Astragalinus tristis*. AMERICAN GOLDFINCH.—Common around creeks and springs.

56. *Spinus pinus*. PINE SISKIN.—Seen but once or twice. Its presence in June would indicate that it breeds within the Hills.

57. *Pooecetes gramineus confinis*. WESTERN VESPER SPARROW.—A Vesper Sparrow was seen, and was probably of this variety.

58. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW.—A common breeder. A nest containing five slightly incubated eggs was found on June 14, 1900. The nest was on the ground, and composed of coarse grass, the lining being of finer grass and horsehair. Eggs similar to those of *C. grammacus*.

59. *Spizella socialis*. CHIPPING SPARROW.—Abundant throughout the region, and breeds. Fresh sets were found from June 3 to 14, 1900. The nest is usually in small pines and cedars in the cañons.

60. *Spizella pallida*. CLAY-COLORED SPARROW.—Several seen at Hot Springs.

61. *Junco aikeni*. WHITE-WINGED JUNCO.—Common about the ranch. Several families of young birds seen on June 11, 1900.

62. *Pipilo erythrophthalmus*. TOWHEE.—Once at Hot Springs, in 1899.

63. *Pipilo maculatus arcticus*. ARCTIC TOWHEE.—Abundant, and breeds. Two nests were found, the first on June 3, 1900, containing four fresh eggs; the second, on June 13, containing four young. Both nests were on the sloping side of a cañon, about six feet from the bottom, beside small rocks. They were composed of pine needles and lined with fine grass.

64. *Zamelodia melanocephala*. BLACK-HEADED GROSBEAK.—Breeding at Edgemont.

65. *Passerina amoena*. LAZULI BUNTING.—Several seen at Sweet's Ranch, where the species doubtless breeds.

66. *Calamospiza melanocorys*. LARK BUNTING.—Common south of Hot Springs, and along the B. & M. R. R. from Edgemont to Newcastle.

67. *Piranga ludoviciana*. LOUISIANA TANAGER.—Very common at the ranch in 1899. Numbers of these tanagers were seen feeding on the maggots in an old carcass, in company with Robins, White-winged Juncos, Chipping Sparrows and Audubon's Warblers. Scarcely two male tanagers were alike in regard to the coloration of the head, some having the crown, occiput, lores and auriculars a very deep crimson-red, while in others, doubtless young males, these parts were merely tinged with orange-red. In 1900 tanagers were not common until June 15.

68. *Petrochelidon lunifrons*. CLIFF SWALLOW.—Breeding abundantly at Hot Springs.

69. *Hirundo erythrogaster*. BARN SWALLOW.—Common breeder under the sheds at the ranch.

70. *Tachycineta bicolor*. TREE SWALLOW.—Abundant. These swallows were carrying away feathers from the barn-yard on June 10, and were probably commencing nest-building at that time.

71. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE.—Seen but once.

72. *Vireo olivaceus*. RED-EYED VIREO.—Common at Hot Springs, Edgemont and Newcastle.

73. *Vireo gilvus swainsoni*. WESTERN WARBLING VIREO.—Fairly common and breeds. Two nests which I examined on June 15, 1900, were each situated in upright crotches of chokecherry trees, four or five feet from the ground. Each nest was neatly constructed of coarse grass and fibers, and lined with fine grass and hair. A full set of four fresh eggs was secured from each nest.

74. *Vireo solitarius plumbeus*. PLUMBEOUS VIREO.—Frequently seen, but very shy.

75. *Dendroica aestiva*. YELLOW WARBLER.—Common at Hot Springs and Edgemont; also seen on Beaver Creek.

76. *Dendroica auduboni*. AUDUBON'S WARBLER.—Abundant at Hot Springs and Newcastle, where its sprightly notes were almost continually heard. This warbler was just commencing nest building on June 15, 1900, boldly coming to the dooryard in search of material.

77. *Geothlypis tolmiei*. MACGILLIVRAY'S WARBLER.—Fairly common in the berry thickets in the cañons, where it doubtless breeds.
78. *Geothlypis trichas occidentalis*. WESTERN YELLOW-THROAT.—Abundant in the brush along Beaver Creek.
79. *Icteria virens longicauda*. LONG-TAILED CHAT.—Usually found in the shrubbery at the bottom of small cañons.
80. *Setophaga ruticilla*. AMERICAN REDSTART.—Fall River Cañon, near Hot Springs.
81. *Galeoscoptes carolinensis*. CATBIRD.—Seen but a few times on Beaver Creek.
82. *Harporhynchus rufus*. BROWN THRASHER.—Breeding on Beaver Creek.
83. *Salpinctes obsoletus*. ROCK WREN.—The lively notes of this species were frequently heard around the rim rock.
84. *Troglodytes aēdon aztecus*. WESTERN HOUSE WREN.—Breeding both at Hot Springs and Newcastle.
85. *Sitta carolinensis aculeata*. SLENDER-BILLED NUTHATCH.—Frequently seen in the heavy timber.
86. *Sitta canadensis*. RED-BREASTED NUTHATCH.—One on Elk Mountain on June 8, 1899, and probably breeds there.
87. *Parus atricapillus septentrionalis*. LONG-TAILED CHICKADEE.—Rather common.
88. *Myadestes townsendii*. TOWNSEND'S SOLITAIRE.—I saw one of these birds at Horseshoe Bend, in the Timber Reserve.
89. *Hylocichla ustulata swainsoni*. OLIVE-BACKED THRUSH.—Hot Springs, May 28, 1899. Several seen.
90. *Merula migratoria*. AMERICAN ROBIN.—Breeding abundantly at Hot Springs, Edgemont and Newcastle.
91. *Sialia arctica*. MOUNTAIN BLUEBIRD.—Common at Hot Springs and Newcastle, breeding at the latter place in dead pines, from four to thirty feet above the ground. One nest was found in the barn at the ranch, and contained five highly incubated eggs, on June 4, 1899.